

HT-R390 three-zone BGA Rework Station instructions



HT-R390 Specification:

Rated Power: 3800W

Rated voltage: AC220V / AC110V optional

The first upper zone power: 800W

Second temperature lower power: 800W

Lower part of the preheating temperature zone Power: 2200W

Dimensions: L500mm * W420mm * H550mm

Weight: 28KG

Temperature control: high-precision closed-loop control of K-type thermocouple

PCB positioning: V-shaped slot, PCB holder can be X, Y direction adjustment

Can clamp PCB size: Max: 20mm * 20mm, Max: 320mm * 375mm

Scope: BGA, PBGA, CBGA, CFP, CPU, CSP, which are lead-free rework

Features:

- 1 Preheat independent infrared ceramic three-zone temperature control rework station, easy to lead-free rework.
- 2 high-power cross-flow cooling fan to accelerate the preheat zone to protect the continuous rework success rate.
- 3 bottom and top heating nozzle in use of high-end rework station mature design.
- 4 temperature options mature, high-end products in use temperature control program.
- 5 warm-up area may be permitted to independently control the size of PCB on.
6. Preheating control optimization, guaranteed preheat temperature, but red.

II. Rework station installation:

1 Installation Notes:

Will rework station on a flat desktop, not a smooth deformation of the bottom placed prone, and thus a greater noise. Will rework station placed in sheltered locations, there are more than 2 meters indoor / S breeze flow, it will cause a greater impact on the welding.

2. Local heating maximum power 3800W, 2000W average power consumption is about, please choose a dedicated outlet, it is recommended to use the power supply line is not less than 2.5 (1.5P air outlet can be).

3. This machine has a maximum heating temperature of 400 degrees, **please keep away from combustible and flammable materials.**

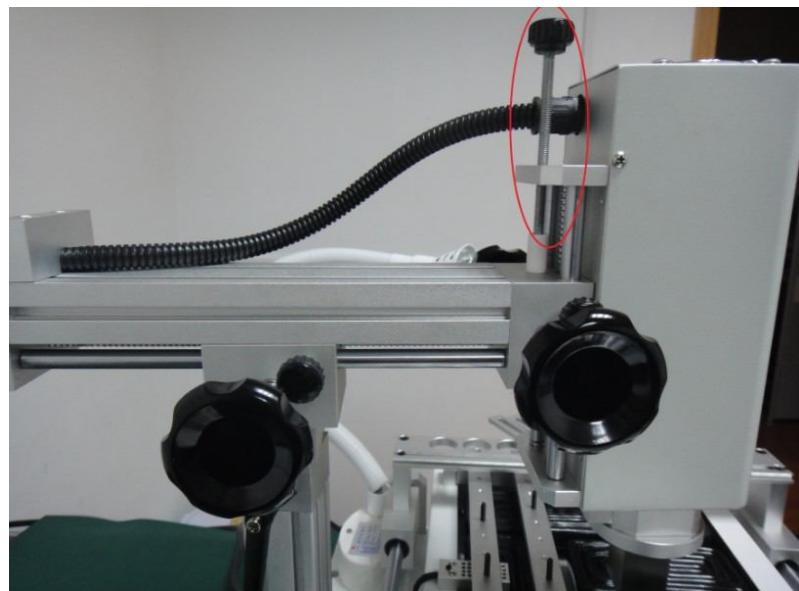
4. Do not use in dusty rooms, as heating will accelerate the aging of components

5. Large area of heating, the use of solder paste is heated, there will be more volatile harmful gases, for the sake of your health, please note that indoor **ventilation**.

Three parts Features



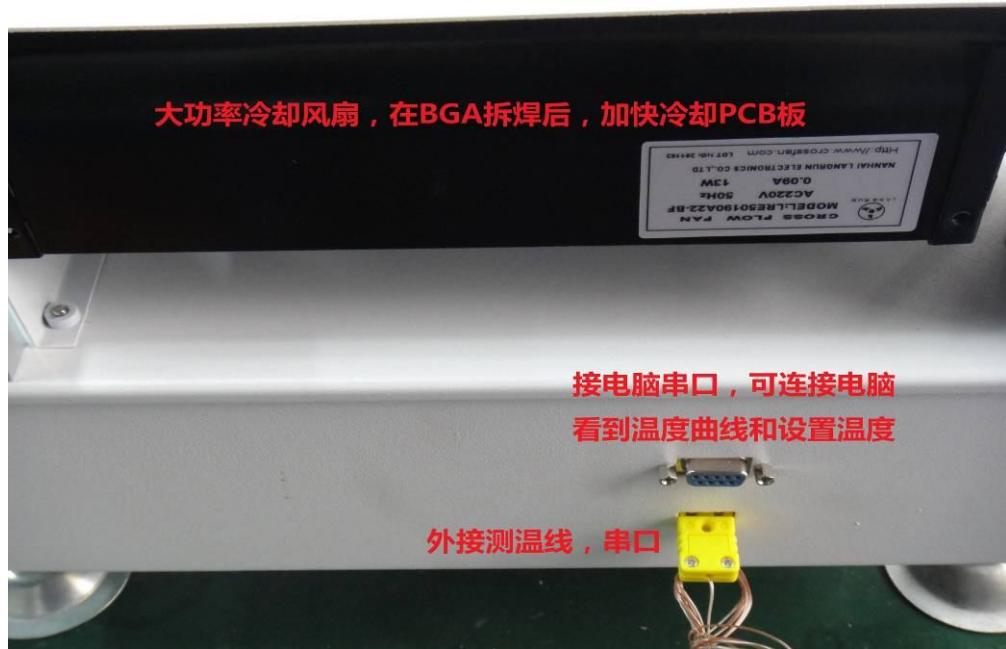
(captions=The profiled clamp is made by gouge and nip, it is much easier to clamp.)



Heating on the first rod



Lower test temperature head (Note: Do not touch)



(caption=high power cooler fan, to use after unsoldering the BGA to help cool the PCB quickly)
 (serial port to connect to PC to read the temperature curve and set the temperature).
 (yellow plug here to connect to temperature reading wire)

IV. Features Control Panel Introduction



1. Upper heating controller: PC900-PC410 series with R232 communication can be connected to the computer, showing the temperature curve. Storage 10 Group 8 8 segments constant temperature heating curve.
2. Lower heating controller: PC900 Series-PC410. Storage 10 Group 8 8 segments constant temperature heating curve.
3. Preheating temperature controller: Japan RKC REX-C10 series models.
4. Hot air adjustment knob
5. Cooling fan control switch
6. Vacuum suction pen control switch
7. Light control switch
8. Stop button
9. Running lights
10. Start button

Start: Press 3 seconds to start using up and down the thermostat displays the current curve PTN heating.

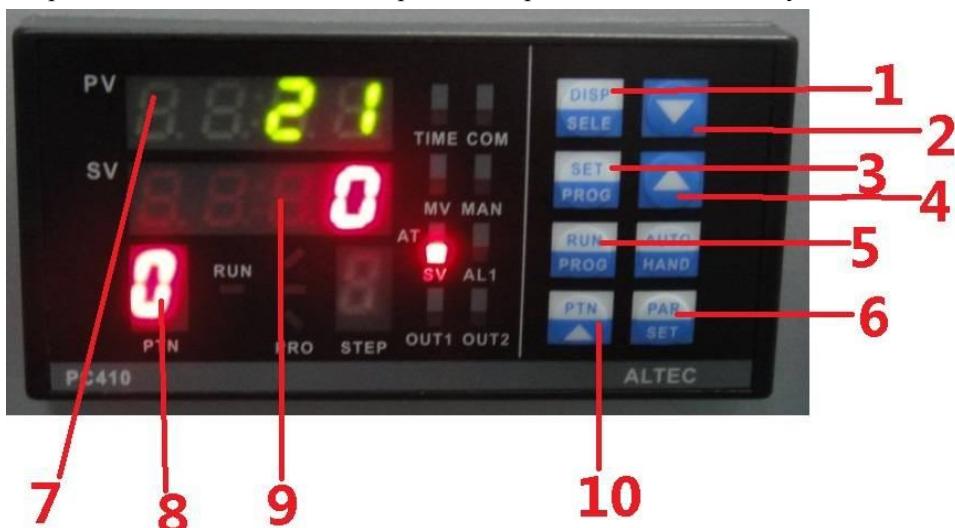
Stop: Press the 1 second, stop the heating curve.

This machine main power switch is on the right side of the 220V circuit breakers, up close to the "ON", the whole power, temperature control table 2S start normal, normal to weld.

Temperature table shows commonly used keys:

PTN: Temperature curve selection, each temperature controller can be stored 0-9, a total of 10 of the temperature curve, according to the PTN, PTN boxes show the corresponding figures for the current use of the temperature curve starts to perform rework station shown in the box PTN curve set.

DISP: By 2, TIME lights, SV shown in the box for the machine panel temperature K-type interface (yellow) are connected to the temperature of the test temperature line. In actual use, the temperature line of the lower temperature head into the BGA chip, BGA chip can be observed at any time the actual temperature.



Control panel description

- 1, SV display status window switch button.
- 2, The value minus key. (Set the curve in the process of reducing the current set value)
3. Set the key, is pressed into the curve set.
4. Incremented key. (Set the curve in the process, increase the current set of values)
5. Curve running Pause. (The curve is running, pressing this key will pause)
6. Setting switch. Curve setting as a switch in the next set.
7. Actual temperature display window.
8. Curve group display window.
9. Set temperature display window.
10. Curve selection, press option 0-9, a total of 10 groups a set of curves, shown in the box in the PTN group, will be used.

Setting procedure demonstrates: The following graph curve table, for example, set the temperature of the upper curve (red).

Suitable material	Lead curve (generally north and south bridge chip materials, such as INTEL)									
Stage	1		2		3		4		5	
Zone no the Slope	r1	3	r2	3	r3	3	r4	3	r5	3
Heated Zone	L1	60	L2	165	L3	195	L4	215	L5	225

The Temperature time	D1	40	D2	40	D3	40	D4	40	D5	40
Area under the temperature slope	r1	3	r2	3	r3	3	r4	3	r5	3
Heating Zone	L1	100	L2	175	L3	195	L4	220	L5	230
Under Temperature Time	D1	40	D2	40	D3	40	D4	40	D5	40
Preheat Zone	Set a target value of 160 degrees									
Preheat Zone	Recommended value of 160 (summer) 170 (winter) at room temperature has a tremendous effect on the curve, to be flexible and adjust									

1 Press the PTN, PTN boxes in the current display to zero, the curve of the 0 group setting.



2 Press the SET button, enter the 0 group of the first curve parameters. r1, 0 group of the first paragraph of the heating curve heating rate (slope). 3.00, said second temperature 3 degrees Celsius. Press Δ , ∇ to increase or decrease this value. All default slope of 3.00. After setting, press the PAR, the next parameter.



3 Press the PAR, the group came to the curves of 0 second parameter, L1, said first set of curves of the first paragraph of 0 to reach the target temperature. We are set to 60. Then continue to PAR.



4 Press the PAR, enter the first curve of the third group 0 arguments. D1, that the first paragraph of the first heating curve group 0 to 165 degrees to keep the target time, the next figure, 60 seconds, ie 165 degrees for 60 seconds. Continue to press PAR



0 Group 3 into the second set of curves, r2, the value of 3.00. And press PAR



0 5 into the second paragraph of the target group of the curve setting set to 165. And press PAR.



4 into Group 0 second heating curve after the hold time to achieve the target, at 165 degrees, maintain 40 seconds.

Then press PAR.



Group 0 the slope of the third paragraph of heating. r 3, is 3.00. And press PAR.



5 0 the temperature of the heating target group. L3, 195 degrees, then press PAR.



6 0 Group the third paragraph of heating, the target value 195 degrees, hold time 40 seconds. By PAR.



7 0 Group access to the fourth paragraph of the heating curve, set the slope of 3.00.



8 into the heating curve of the fourth paragraph of the target. 215 degrees, according to PAR



8 0 Group the fourth paragraph of the heating curve, reaching target temperature of 215 degrees, hold time is 40

seconds. Press PAR



Group 0 the slope of the curve of the fifth paragraph of the heating, is set to 3.00. By PAR.



0 Group 8 into the heating curve of the fifth paragraph of the target set, is set to 225. By PAR



0 Group 8 the fifth paragraph of the heating curve of hold time. At 225 degrees, maintain 40 seconds. By PAR



After the five sections of the heating 9, the r6 is the slope of the sixth paragraph has been by ▼, reduced END, when the program runs to the beginning of the sixth paragraph, is automatically ended.



Group if they want to set more heat, continue to follow the above method to set.

The following parameters Hb, is set to 320, do not modify.



Upper and lower temperature table adjustment method is the same.

Infrared heating controller settings::

- 1. Actual temperature display "PV"
- 2. Set temperature display "SV"
- 3. Temperature setting key "SET"
- 4. Temperature setting key addition and subtraction



Temperature setting method: Press "SET" a second release, PV window shows SO, SV value of the units display

window flashing, press \blacktriangle \blacktriangledown to change value press the "SET" to.



V. Other Precautions

1, the machine is not an air rework system, when used indoors with more than 2M / S to speed the flow will have greater impact welding, so try to operate in the absence of wind environment.

2, room temperature, the greater impact on the welding, and room temperature 10 degrees and 30 degrees at room temperature (such as winter and summer), the effects of welding varies greatly, it is recommended that welding, according to room temperature, at any time adjust the temperature of preheating zone . Improve Preheat zone preheat temperature: the upper and lower hot air hot air in the first paragraph by the 40S extend the heating time as 60 ~ 100S, will raise the temperature of preheat temperature controller 30-50 degrees.

3, when heated, select the appropriate nozzle size on the weld has a greater impact on success rates, in general, the larger the size of the nozzle used, you need a corresponding increase in the appropriate temperature. The Random recommended curve for the use of 34mm * 34mm (medium nozzle) test proceeds.

Heating, the upper nozzle distance from the chip 2-3mm.

4, 775 and 478 CPU welding seat nozzle, it is recommended to use 775 and 478 CPU and the size of the nozzle, air nozzle inserted in front of 775 and 478 of the socket part of the tentacles, mouth and other parts not covered by the wind, this will be achieved the best results.

VI. HT-R390 hot air rework station temperature curve

All of the following curve, the slope of $r = 3.00$ applies to heating at room temperature 18 to 20 degrees, use the appropriate adjustment based on ambient temperature.

Suitable Material	Lead curve (generally north and south bridge chip materials, such as INTEL)									
Stage	1		2		3		4		5	
Zone on the slope	r1	3	r2	3	r3	3	r4	3	r5	3
Heated Zone	L1	70	L2	165	L3	185	L4	220	L5	225
The Temp. Zone	D1	40	D2	40	D3	40	D4	40	D5	40
Area under the temp. slope	r1	3	r2	3	r3	3	r4	3	r5	3
Heating zone	L1	100	L2	175	L3	195	L4	235	L5	245

Under Temp. Zone	D1	40	D2	40	D3	40	D4	40	D5	40
Preheat Zone	Set a target value of 160 degrees can									
Preheat Zone	Recommended value 150 (summer) 180 (winter) at room temperature has a tremendous effect on the curve, to be flexible and adjust									

Suitable Material	Lead-free curve (generally north and south bridge materials, such as INTEL)									
Stage	1 2 3 4 5									
Zone on the slope	r1	3	r2	3	r3	3	r4	3	r5	3
Heated Zone	L1	165	L2	185	L3	215	L4	235	L5	245
The Temp. Zone	D1	40	D2	40	D3	40	D4	40	D5	40
Area under the temp. slope	r1	3	r2	3	r3	3	r4	3	r5	3
Heating zone	L1	165	L2	195	L3	225	L4	245	L5	260
Under Temp. Zone	D1	40	D2	40	D3	40	D4	40	D5	40
Preheat Zone	Set a target value of 180 degrees									
Preheat Zone	Recommended value 180 (summer) 200 (winter) at room temperature has a tremendous effect on the curve, to be flexible and adjust									

Curve using the following simplified form:

Suitable Material	Lead-free curve (generally north and south bridge materials, such as INTEL)				
Stage	1	2	3	4	5
Heated Zone	165	185	215	235	245
Heating Zone	165	195	225	245	260
Time	40	40	40	45	45
Preheat Zone	Recommended value 180 (summer) 200 (winter) at room temperature has a tremendous effect on the curve, to be flexible and adjust				

Suitable Material	Lead-free curve (lead-free 775 CPU Block)				
Stage	1	2	3	4	5
Heated Zone	165	195	235	255	260
Heating Zone	165	195	235	245	270
Time	40	40	40	50	50
Preheat Zone	Recommended value 180 (summer) 200 (winter) at room temperature has a tremendous effect on the curve, to be flexible and adjust				

Suitable material	Lead curve (with lead 775 CPU Block 478CPU Block)				
Stage	1	2	3	4	5
Heated zone	100	165	215	230	240
Heating zone	100	195	225	235	240
Time	40	40	50	50	50
Preheat zone	Recommended value of 160 (summer) 180 (winter) at room temperature has a tremendous effect on the curve, to be flexible and adjust				

Suitable material	Lead-free curve (notebook AMD, ATI and other chips, thin chips) Lead-free curve (such as Taiwan NV NF4 board and other chips)				
Stage	1	2	3	4	5
Heated zone	70	110	165	205	225
Heating zone	110	165	215	260	270
Time	40	70	70	50	50
Preheat zone	Recommended value 180 (summer) 200 (winter) at room temperature has a tremendous effect on the curve, to be flexible and adjust				

ATI /NV bridge chip, PCB generally thin, heat, and take on the temperature, low temperature, lower temperature zone with high temperature method. The upper temperature zone not more than 245 degrees, or easy drum kit (drum kits, but after some chips even after normal use).

Suitable material	Lead-free curve (curve notebook graphics NV, etc.)				
Stage	1	2	3	4	5
Heated zone	165	195	215	232	242
Heating zone	165	195	215	260	270
Time	40	70	70	50	50
Preheat zone	Recommended value 180 (summer) 200 (winter) at room temperature has a tremendous effect on the curve, to be flexible and adjust				

VII. BGA solder FAQ

1, BGA how to debug, find their own use of the curve?

BGA chip de-soldering is subject to a variety of environmental impact, air temperature, humidity, indoor breeze flow, PCB thickness, PCB copper distribution.

Can not be a curve in the country, a variety of environments can be done welding, according to our statistics, only about 45% of customers can use our curve, without the need for adjustment. Our factory debugging environment for indoor 25 degrees. Semi-closed debug room. Air humidity. Debug materials generally notebook motherboard Northbridge. So, when this problem occurs, we want to provide us with the actual situation based on the curve, make the appropriate adjustments.

Debugging method, using desktop or laptop North Bridge North Bridge (using waste board debugging, but requires PCB level, try not to have distortion, PCB without deterioration). Not recommended or smaller notebook graphics chip temperature debugging.

The welding of the board, with flat clamping fixture, the first observation, set to run in the fourth paragraph, when completed, observe the line of the test temperature from temperature, lead-free curve is the ideal temperature can reach 217 degrees, have lead to the curve 183 degrees. These two temperatures is lead-free and lead-melting point materials. But this time the chip did not melt the bottom of the ball, from the maintenance point of view, the ideal temperature is 235 degrees lead-free, lead-200 degrees, then melted and then cooled ball will reach the ideal strength.

Lead-free solder, for example:

After heating the fourth paragraph, the temperature does not reach 217 degrees, then alter to the size of the gap and improve the third, four temperatures. For example: the measured temperature reaches 205 degrees, then the hot air up and down independently adjustable, each by 10 degrees. If a big gap between the measured 195 degrees, 30 degrees is recommended to improve the lower and upper 20-degree increase, the upper temperature should not increase too much, so as to avoid thermal shock on the chip is too large.

After heating, the fourth paragraph of the temperature reached 217 degrees, for the ideal state, if more than 220 degrees, will have to observe the fifth paragraph (maximum temperature above) before the end of the chip to reach the maximum temperature. Not to exceed 240 degrees is appropriate. If more than more, may be appropriate to lower the temperature of the fifth paragraph.

2, welding, the bottom bracket on the PCB board thimble not always withstand the same time, some feet to the top of the component, how do?

The PCB on the bottom of the bracket has been designed thimble we can adjust the height by turning the screw, according to the six foot height difference, the flexibility to adjust the height of six feet. Feet to the top component, may be appropriate to stagger 1-2mm.

3, Air volume control knob of the role?

We provide the nozzle size from 25mm to 40mm five sizes, even if the same temperature setting, the use of different nozzles, the final heating temperature of the chip is different. The smaller the nozzle, the higher the heat the same unit, the chip's temperature is higher, this is a very simple truth, all the hot air welding equipment, all can not escape this law. When the smaller chip welding when using the smaller nozzle, air volume control knob can be passed, the wind speed reduction, say this greatly reduces the chance of explosion chip.

Of course, another way is to increase the appropriate distance from the nozzle to the chip, an appropriate increase in 1-2mm, so the heat will greatly reduce the chip.

1, welding 775 CPU seat to pay attention to what issues?

775 of the PCB copper distribution is very uneven, is near the outer half of the copper ground and power distribution on the inside of the half then all of the PCB signal line. According to our tests, 775CPU Block PCB temperature difference between the two largest copper can reach 20 degrees, because a lot of ground and power supply copper to the PCB heat divergence in other locations.

775, direct plus welding (not removed, then welded directly to one), must use liquid flux.

775 welding time, be sure to remove the metal cover the new socket.

Nozzle must be the right choice, select and 775 inside the plastic box the same size nozzle.

Welding, the fixture must be able to maintain smooth gripping socket 775. Do not bother, to be repeated by adjusting the lower part of the nozzle, to ensure that the top part of the 775 PCB level.

2, the choice of solder paste

Recommended to use environmentally friendly liquid flux (for additional welding) or BGA solder paste special. But notes that: BGA solder paste is to use time, the high temperature preservation of the environment can easily lead to failure of solder paste. Such as 30 degrees room temperature, direct sunlight, within 10 days of solder paste is completely degenerate. Paste deterioration, the flux will completely lose the effect. Please select the shade, a cool place to store BGA solder paste.

3, BGA soldering cleaning

Network recommend the use of special steel plate washer water with ultrasonic cleaning. After a ball is not recommended to use recycled, once the tainted eyes can not see the dust and a small amount of solder paste, will result in trouble the next plant. PCB recommends using clean cloth dipped in clean water washer. Plant is completed. Do not allow hand-ball, sweat or grease contamination, the failure may be caused by welding. Remember: Details determine success or failure.

4.,burst on the film and how to save the chip problem

BGA chip soldering, I heard a slight crackling sound, it may be that we called the burst bridge, the bridge explosion caused no more than two reasons: First, the air flow is uneven, a point the temperature is too high, resulting in explosive bridge; second chip internal moisture, moisture, welding process, the water vapor rapidly spill, causing the copper foil circuit or chip breaker. PCB will have this same problem, a serious damp layer PCB board easily short-circuit and cause a serious distortion. So for some time longer to place the chip, the proposed drying operation, the drying is done using a simple repair station on the chip temperature of 150 degrees for 15 minutes of heating. Professional approach is to use the oven at 100 degrees, the entire piece of board and chips for 10 hours of drying. Chips stored in the indoor environment, even if the new chips will still absorb moisture from the air, causing damage, so it is recommended to buy Cabinets (usually used to store drugs) to save the chip.

5, how to get Glue chip?

If the BGA chips into the bottom of the thermometer the temperature of the test line, 230 degrees, this time, the ball has melted but why take the chips as usual approach, take tweezers to not get down the chip, because the adhesive of the chip, so hard take, so hard to take off points will not? No. Because the pad on the tin has melted into a liquid state, while the glue is between perfusion in the ball and did not stick to the pad on the course will not take force off points.

However, note the placement of temperature line position: it

Temperature line position of the display need to pay attention to the problem?

The distribution of copper on the PCB is not a regular, bottom of the chip, some signal lines, some power lines and ground.

Then, the same heating temperature, the role in a different location on the power line and ground is certainly (thick) to absorb the heat more, the thin part of the absorbed heat less. In other words, the same temperature of 250 degrees,

at the beginning of the heating chip part of the PCB, when in fact it is the bottom temperature is different, take some time, the temperature can be uniform.

Therefore, the temperature line were placed, even if the test reached 230 degrees, the rest can not reach 230 degrees, perhaps only 220 degrees, but more than a lead-free solder has a melting point of 217 degrees. So this time we can remove the chip bold force.

Of course, the time to reach 230 degrees, or suggest that you would be better to keep one. This is more difficult to point out.

Eight. Service and Contact

The whole year warranty, two-year service warranty thermostat.

Other Accessories:

1, the nozzle does not provide warranty service.

2, CD-ROM does not provide warranty service. If damaged, please contact us download.

Service Phone:

Mechanical failure, electrical: 13,728,752,178 075,527,396,415 Wu workers work long

Experience with technical advice: 13922807635 Wu workers

Technical Support QQ: 611650545